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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

HOMEMAKERS' CHAT Monday, August 28, 1939

(FOR BROADCAST USE ONLY)

Subject: "PLASTICS FROM FARM PRODUCTS." Information from the Forest Service, and Bureaus of Agricultural Chemistry and Engineering, and Dairy Industry, U. S. Department of Agriculture.

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New plastics for a hundred uses,- in every imaginable shade and shape,- in large articles and small ones,- are featured at the New York World's Fair. Many of these articles of plastic materials are of definite interest to homemakers. They're the common things of everyday living, like salt shaker tops, coffee pot handles, cosmetic jars, unbreakable dishes, ash trays, kitchen clocks, raido cases, bureau sets, and dozens of others.

Just what are "Plastics"?

In general, explains a scientists of the U.S.Department of Agriculture, a plastic material is a mixture or combination of organic substances which can be molded under heat or pressure. These substances become more or less fluid when heated. They are mixed with fillers and shaped in different forms which harden permanently as they are cooled.

Some plastics are light in weight and tough in structure. They have been found desirable for making articles for which wood or metal was formerly used. Others resist corrosion by acids, salts, oils, and various chemicals. These have many industrial and laboratory uses as containers, bottle caps, gaskets, and stands. Most plastics are poor conductors of heat. So they have proved excellent for the handles of hot equipment,- oven doors, coffee pots, electric irons, waffle irons, and so on. Some types can be colored in various ways and are in demand for clothing accessories, like buttons or costume jewelry or purse tops. They do not deteriorate

when used for light fixtures, door knobs, or for the decorative parts of automobiles, like the instrument panel and glove compartment door.

Most of the plastics made commercially at present are composed of chemical compounds developed in industrial laboratories. Our Washington correspondent writes this week that she has been on the trail of plastics that can be made from agricultural waste products.

"At the present time," she writes, "most of these are only known in the laboratory. They are not yet manufactured commercially. But plastics manufacturers, like everybody else, are constantly seeking ways to cut costs or make a better product, or develop an easier process. Whenever the scientists show results that answer these needs, manufacturers are interested. When they take up some of the plastics from farm wastes, there will be greater money returns for the farmer.

"For instance, the whey from the larger cheese factories is almost a total loss. Yet it contains milk sugar, which can be converted into lactic acid. The Bureau of Dairy Industry is working to perfect means of converting lactic acid into a plastic material. The lactic acid of whey can be produced very cheaply and can be used in making a clear water-white transparent plastic material, similar to that used for window panes in air-liners. This plastic is made at present from sources other than whey and is comparatively expensive. An interesting use for transparent plastic is in preserving scientific specimens of insects and flowers. The casein obtained from skim milk is already used in making many plastic articles like buttons, belt buckles, and penholders.

"Then there's lignin. When wood cellulose is made into the better grades of white paper, or the synthetic yarns we call rayon, or into certain of the cellulose plastics, quantities of lignin are literally dumped into sewers as waste. According to the Forest Products Laboratory, this lignin can be treated to produce a cheap plastic of many building uses. It's good for floor tiles and panels for

walls. The lignin is combined with sawdust or wood flour as a filler, and small amounts of certain chemicals. The mixture is then subjected to high temperatures and pressures in a mold. The molded tiles and panels are black. Surface changes may be made by the application of thin wood veneer, paper, or paint.

"Another cheap source of raw material for plastics is sugar-cane bagasse. That's the waste left when the sirup is extracted. The bagasse is used in much the same way as wood wastes.

"Soybeans are another source of protein plastic material of interest to research workers. (Casein of skim milk is a protein plastic, in case I did not mention it.) The laboratory of the U.S. Department of Agriculture at Urbana, Illinois, has been investigating the possibility of making molded plastics from soybeans after other materials have been removed, and very promising results have been obtained.

"Cornstalks constitute still another farm waste. It is possible to use them in making plastics. Scientists in the U.S. Department of Agriculture are making progress on the technical problems which must be solved with each of these materials, and if the present rapid growth of the plastics industry is any indication, it may not be long before we shall be living in houses made of wallboards or panels from wood wastes, using unbreakable dishes of soybean plastics, wearing buttons of casein, and looking through window panes made with the help of the lactic acid in whey. Let's keep an eye on these plastics!"

That's all of our Washington letter.

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